ACRP Problem Statement: 16-07-06

**Impact of Autonomous/Driverless Vehicle to Airport Landside Terminal Planning and Design**

ACRP Staff Comments

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TRB Aviation Committee Comments

INTERGOVERNMENTAL RELATIONS IN AVIATION (AV010): Unclear of timing and ability to evaluate in current ACRP project.

AIRPORT TERMINALS AND GROUND ACCESS (AV050): The committee suggests that this research identify the potential impacts of Autonomous/Driverless Vehicles and their implication to long range planning.

Review Panel Comments

Not recommended. This is a big topic for the airport of the future; however, automated vehicles are still a ways off--there may not be enough information out there from which to draw, so it may be better to reconsider the proposed research as part of the FY 2017 program. Repurposing parking ramps and roadways should be a chapter study due to the existing investment in infrastructure for the future. The effort could be potentially limited to a synthesis on existing practices. Difficult to adapt the terminal and parking facilities.
1. PROBLEM STATEMENT TITLE

Impact of Autonomous/Driverless Vehicle to Airport Landside Terminal Planning and Design

2. BACKGROUND

Emerging automotive and transportation technologies have created revolutionary possibilities in the way we might travel in future. These include Autonomous vehicles (AVs) or Self-driving cars or Driverless cars that can drive by themselves with little to no need of a human driver. Major car manufacturers and technology giants have demonstrated significant progress in advancing and testing these technologies in real-life traffic conditions. As of today, four U.S. states – Nevada, Florida, California, and Michigan – and the District of Columbia have passed laws permitting the testing of autonomous vehicles (AVs) on highways. In addition, other eight states are under consideration of permitting the testing. Although there are unresolved obstacles, AV might be commercialized sooner than many of us have expected.

Income from parking and rental car facilities, for most of commercial airports in the U.S., are significant components in their revenue. Airports design the parking capacity and calculate the parking fees according to passenger throughput and mode split forecast, as well as the leasing rate of the rental car facilities. Nevertheless, with the emerging AV transportation modes, the fundamentals could change. In the future, if financially more economical, passengers may send their AVs back to their house instead of parking at the airports. Rental car industry could be totally different then with completely new business model and may not need to lease space on airport property. Given these changes, drop-offs and pick-ups at curbside or designated areas could increase. Thus, it is important to plan our airports considering the entering of the new technologies. Not taking these potential impacts into the airport terminal planning and design could lead to large discrepancy between planning and reality and substantial waste or incorrect allocation of investment.

3. OBJECTIVE

The objective of this project is to explore the potential impact of AV to airport landside terminal planning and design, and to develop guidelines for including emerging technologies in airport dynamic master planning.

4. PROPOSED TASKS
1. Select representative large, medium, small hub airports and obtain the operational and financial statistics of the airports, as well as the demographic information of the catchment areas of the airports.

2. Review the AV literature and articles on consumer perception, market penetration, and future utilization of AVs.

3. Apply scenario analysis and estimate the impacts of AVs to parking demand, to rental car facility locations.

4. Compare the impacts to different types of airports and provide recommendations to landside terminal planning and design.

5. ESTIMATED FUNDING

The estimated funding for this project is $200,000.

6. ESTIMATED RESEARCH DURATION

The estimated research duration is 15 months (including 3 months of panel review).

7. RELATED RESEARCH

ACRP report 10. Innovations for Airport Terminal Facilities.
ACRP report 34, Handbook to Assess the Impacts of Constrained Parking at Airports.

8. PROCESS USED TO DEVELOP THE PROBLEM STATEMENT
9. PERSON SUBMITTING PROBLEM STATEMENT AND DATE
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